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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,073	10/29/2003	Stephen Baumann	370028-00001	5939

3705 7590 12/28/2005

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EXAMINER

SAVAGE, JASON L

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/696,073

Applicant(s)

BAUMANN ET AL.

Examiner

Jason L. Savage

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 1 and 11, the limitations that the Cu and Mn content in the water-side liner is "greater than 0%" is new matter which has no basis in the specification or the claims as originally filed. While there are multiple mentions of the limitation that the water-side liners have a content of less than (emphasis added) about 0.1% Cu and less than (emphasis added) about 0.25% Mn, there is no explicit teaching or suggestion that both Cu and Mn are present in an amount greater than 0% (emphasis added). Furthermore, it was noted that in the only example of the present invention, set forth in Table 1 of the specification, contains 0.0% Cu and 0.0% Mn. All of the claims which depend on claims 1 and 11 are rejected for the same reason set forth above.

In claims 9 and 28, the limitation that the Fe content in the core layer is "greater than 0% Fe" is new matter which has no basis in the specification or the claims as originally filed. While there are multiple mentions of the limitation that the core layer have

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a content of less than (emphasis added) about 0.5% Fe, there is no explicit teaching or suggestion that Fe is present in an amount greater than 0% (emphasis added).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1- 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda et al (US 6,261,706).

Fukuda teaches a composite aluminum alloy structure such as a heat exchanger having excellent corrosion resistance (col. 2, ln. 51-64). Fukuda further teaches the structure comprises an aluminum core layer, a water-side liner in the form of a sacrificial anode cladding on one side of the core and a braze liner on the other side of the core (col. 2, ln. 65 – col. 3, ln. 13).

Regarding claim 1, Fukuda teaches the water-side liner comprise an aluminum alloy containing 0.01-0.8% Si, 1.5-8% Zn, 0% Cu, 0% Mn, 0.01-0.3% Fe, with the balance being Al (col. 4, ln. 5-12). Fukuda further teaches the water-side liner may comprise 0-2.5% Mg (col. 3, ln. 26-31).

Fukuda also teaches several examples, in particular, examples a4 and a5 in Table 2, which contain 0.4 % Si, 1.45% and 2.00% Mg respectively, 0.1% Fe, all of

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which fall within Applicant's claimed ranges for those elements. Examples a4 and a5 only contain 2.3% Zn as opposed to 2.5% in the claims; however, Fukuda exemplifies other embodiments such as a1 and a13 which have Zn in the claimed range.

Fukuda is silent to the water-side liner containing greater than 0% Cu and greater than 0% Mn. However, the current claim limitations of greater than 0% reads on levels that could be considered impurities. It is not clear how minimal amounts of Cu and Mn in the water-side liner as claimed could provide a material difference when compared to the prior art. Absent a teaching of the criticality or showing of unexpected results from Cu and Mn being present in the water-side liner in amounts greater than 0%, it would not provide a patentable distinction over the prior art. Specific claimed alloy, whose compositions are in such close proportions to those in the prior art that, *prima facie* one skilled in the art would have expected them to have the same properties, must be considered to have been obvious from known alloys, *Titanium Metals Corporation of America V. Banner*, 227 USPQ 773.

Regarding the limitation that the Mg in combination with Si from all of the aluminum alloy components impart natural age hardening of the aluminum alloy structure at room temperature, since Fukuda teaches the same materials as that claimed by Applicant, one would expect the composite aluminum alloy to exhibit a similar age hardening at room temperature such as is claimed. The Patent and Trademark Office can require Applicant to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical

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or substantially identical processes; burden of proof is on Applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 U.S.P.Q. 431 (CCPA 1977).

Regarding claims 2, 9, 11-12, 16-17, Fukuda teaches the core layer comprises 0.3-2.0% Mn, 0.25-1.0% Cu, 0.3-1.1% Si, 0.05-0.35% Ti and 0% Fe with the balance being aluminum (col. 3, ln. 1-5). Fukuda further teaches that the core may comprise 0.5% or less of Mg (col. 3, ln. 26-31). Regarding the limitation that the core layer contain greater than 0% Fe; Fukuda is silent to the core containing the claimed amount of Fe. However, the current claim limitations of greater than 0% reads on levels that could be considered impurities. It is not clear how minimal amounts of Fe in the core layer as claimed could provide a material difference when compared to the prior art. Absent a teaching of the criticality or showing of unexpected results from Fe being present in the core layer in amounts greater than 0%, it would not provide a patentable distinction over the prior art.

Fukuda also teaches several examples, in particular, example a11 which comprises 1.2% Mn, 0.25% Mg, 0.5% Cu, 0.5% Si, 0.15% Ti and 0% Fe which meet the claim limitations.

Regarding claim 3, Fukuda teaches the braze is an Al-Si alloy (col. 3, ln. 1).

Regarding claims 4, 14 and 27, Fukuda is silent regarding the silicon content in the core being 0.28% or less. However, Fukuda does teach that the silicon content may

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be as low as 0.30% and further exemplifies an embodiment at this silicon concentration (col. 3, ln. 1-5 and Example A5 in Table 1). Given that Fukuda teaches concentrations of all of the other elements within the ranges claimed and that there is not a magnitude of difference between a Si content of 0.28% versus a Si content of 0.30% as taught by Fukuda, the Si content of 0.28% would have been obvious in view of Fukuda. Specific claimed alloy, whose compositions are in such close proportions to those in the prior art that, prima facie one skilled in the art would have expected them to have the same properties, must be considered to have been obvious from known alloys, *Titanium Metals Corporation of America V. Banner*, 227 USPQ 773.

Regarding claim 5, 18-23 and 28, Fukuda's examples teach the liner contains the elements in amounts which anticipate all of recited elements with the exception of Si (see Examples a4, a5 and a13 in Table 2). However, Fukuda teaches that the Si content may be as low as 0.01% (col. 3, ln. 5-12). Therefore, it meets the claimed Si content between the range of 0.2-0.35%.

Regarding claim 6, Fukuda teaches the composite structure may be used as a heat exchanger (col. 2, ln. 51-64).

Regarding claims 7 and 25, Fukuda teaches the thickness of the water-side liner is between 10-20% and the thickness of the braze is 10% of the total thickness of the structure (col. 6, ln. 27-36).

Regarding claim 8, 24 and 26, Fukuda teaches the structure may be tubular shaped and that it may be joined to other structures by brazing (col. 1, ln. 10-18). The teaching about joining the structure is viewed as a teaching that the braze layer in the

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recited structure would be on the outside since it would be unlikely and undesirable to bond other structures to the interior of a heat exchanger.

Regarding claims 13 and 15, although the cited example A11 does not have Mn and Mg in the core layer within the claimed range, examples A10, A12 and example A13 teaches Mn contents of 1.0, 0.8% and a Mg content of 0.12% making the addition of the cited elements in the amounts claimed obvious to one of ordinary skill in the art.

Response to Arguments

Applicant's arguments filed 10-3-05 have been fully considered but they are not persuasive.

Applicant argues that Fukuda does not teach Cu and Mn contents in the water-side liner being present in an amount greater than 0% as is presently claimed.

Applicant states that since Table 2 of Fukuda does not even list Cu or Mn, that the reference could not anticipate the claims. While the references would not anticipate the present claim limitations, Applicant has not shown how minimal amounts of Cu and Mn in the water-side liner as claimed provide a material difference when compared to the prior art. Absent a teaching of the criticality or showing of unexpected results from Cu and Mn being present in the water-side liner in amounts greater than 0%, it would not provide a patentable distinction over the prior art.

Applicant also argues that Fukuda teaches away from the post-braze natural age hardening provided by the combination and content of the elements in the composite alloy of the invention. Applicant states that this view is supported at page 6, lines 4-11

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of Applicant's disclosure wherein Fukuda is expressly distinguished as exhibiting low post-braze strength. This argument is not commensurate in scope with the claims since no post-braze strength is claimed. Furthermore, Fukuda expressly recites the composite aluminum alloy exhibits superior strength after brazing (abstract). Fukuda also teaches post-braze tensile strengths which are similar to those disclosed by Applicant in Table 2 of the present specification (table 3 in Fukuda). As such, Applicant's assertion that Fukuda teaches away from the present invention by teaching a low post-braze strength is not persuasive. Regarding the limitation that the composite alloy structure naturally age harden at room temperature, since Fukuda teaches the same materials as that claimed by Applicant, one would expect the composite aluminum alloy to exhibit a similar age hardening at room temperature such as is claimed.

Applicant further cites the examples in Table 7 of Fukuda as evidence that the composite structure of Fukuda has poor brazeability and relatively low tensile strength after brazing. As was set forth previously, this argument is not commensurate in scope with the claims since no strengths or brazeability is claimed. However, the results from the Examples shown in Table 7 of Fukuda are recited as being comparative examples (emphasis added) which "were inferior in any one of strength after brazing, corrosion resistance, and brazeability" (col. 9, ln. 31 – col. 11, ln. 43). The examples shown table 3, which contain materials according to the invention of Fukuda all exhibit high post-braze tensile strengths and good brazeability. As such, the Applicant's assertion that Fukuda teaches away from the present invention is not persuasive.

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Applicant argues that claims 2, 9 and 28 containing the limitation that the core layer include greater than 0% of Fe is not taught or suggest by Fukuda. However, as was set forth above, it is not clear how minimal amounts of Fe in the as claimed could provide a material difference when compared to the prior art. Absent a teaching of the criticality or showing of unexpected results from Fe being present in the core layer in amounts greater than 0%, it would not provide a patentable distinction over the prior art.

Applicant argues that claims 2-3 and 5-13, 15-26 and 28 are allowable due to the reasons set forth above in reference to claim 1. However, as was recited previously, the newly added limitations were not found to provide a distinction over the prior art and as such, claims 2-3 and 5-13, 15-26 and 28 are not allowable over the prior art of record.

Regarding claims 13 and 15, Applicant argues that it would be improper to pick and choose thus arbitrarily combining different segments of disclosure from a variety of different examples until the recited combination is eventually achieved by the conglomerations of the segmented disclosure. Applicant further states that to cross-combine certain aspects of the disclosed examples, but not others, would require at least partial destruction of the teachings of the individual examples in a manner not taught or suggested by the prior art. However, As was set forth previously, Fukuda teaches the core layer may comprise 0.3-2.0% Mn and 0.5% or less of Mg (col. 3, ln. 1-31), as such, Applicant's assertion that it is not taught or suggested by the prior art to include these elements within the amounts claimed is not persuasive. The references to multiple examples was merely to show more specific embodiments having material

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contents within the ranges claimed by Applicant was known to be suitable for use in the invention of Fukuda.

Applicant also argues against the Examiner's reasoning for rejecting claims 4, 14 and 27. Applicant first argues that the Examiner's statement that 0.28% Si as claimed is not patentably significant from "as low as 0.30%" disclosed in Fukuda is an overbroad generalization. Applicant states that it is a well known fundamental of patent law that even a slight variation of an element of an invention can result in a drastically different resultant product, which is patentable. Applicant further states that this patent law premise is particularly true in the instant case where the claimed element Si plays a significant role in the unique age hardening and good brazeability features of the composite alloy of the invention. Applicant argues that as such, to find that a content of 0.15-0.28% as being obvious in view of Fukuda which at best teaches an Si content of 0.3% in only one example while in all other instances requires more would be improper.

While it is a well known fundamental of patent law that when a slight variation of an element results in a drastically different resultant product can be patentable, Applicant has not shown how the products containing 0.3% Si and 0.28% Si are drastically different. Should Applicant provide evidence that the two products are drastically different, patentability could be established; however, the mere assertion that products can drastically differ is not considered evidence. Regarding the assertion that the premise that products can materially differ due to a slight variation in content of one element is particularly true in the instant case where Si plays a significant role in the unique age hardening and good brazeability features of the composite alloy, the

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Examiner can find no teaching or evidence of why such would be the case at a content of 0.28% Si. To the contrary, given Applicant's disclosure that Si may be contained in an amount from 0.15-0.50% in the core layer in other claims and in the specification, the assertion that a patentably distinct difference in the product is evident when Si is contained in an amount of 0.28% or less is not persuasive. Absent a teaching of the criticality or showing of unexpected results at 0.28% Si, it is not considered to be patentably distinct from the core layer of Fukuda which contains 0.30% Si.

Applicant next argues that since example A5 of Fukuda recites 0% Mg that it would fail to teach or suggest the 0.1-0.3% Mg content of the core as is required in claims 4, 14 and 27. However, as was set forth previously, Fukuda teaches that the core may comprise 0.5% or less of Mg (col. 3, ln. 26-31), making the addition of Mg to the exemplified alloys obvious, including the alloy in example A5.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the


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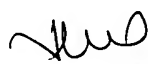
shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Savage whose telephone number is 571-272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jason Savage
12-21-05


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12/26/05